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MCLEOD & MOYNE, P.C. 2190 COMMONS PARKWAY OKEMOS, MI 48864			THAKUR, VIREN A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/679,714	Applicant(s) AWAD, AZIZ CHAFIC	
	Examiner Viren Thakur	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-14 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The rejection of claims 1, 3-4,6-13 and 16-19 under 35 U.S.C. 112, first paragraph has been withdrawn, as a result of the amendment to the claims which removed the limitation of "consisting essentially of" and the limitation "dry."
2. The rejection of claims 1-14 and 16-19 under 35 U.S.C. 112, second paragraph has been withdrawn as a result of the amendment which removed the limitation of "consisting essentially of" and "dry."

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4,6-14 and 16-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 recites the limitation "removing the medium and microorganism" and "removing the aqueous medium containing the microorganism." The specification has not provided adequate support for these limitations in the claims. The examples in applicants' specification disclose wherein the *aqueous fermentation medium* is circulated into and out of the mixing tank but do not disclose wherein the microorganism is also removed from the mixing tank. Applicant has not defined the term aqueous fermentation medium and additionally, to the skilled artisan, the aqueous fermentation medium is the medium in which fermentation occurs, and thus is considered the aqueous medium and does not include the organism used for fermentation. Claim 1 further recites the limitation "wherein no sugars are added to the processed food through steps (a) to (e)." Applicants' specification has provided support for wherein no sugars are added between steps (a) to (d), on paragraph 0018, which states that "Figure 5 is a flow diagram showing a microbial fermentation process for the removal of acrylamide precursors in processed cereal mix with no sugar added prior to cooking. This does not disclose that no sugar is added during cooking, as recited by the limitation "through steps (a) to (e)." Claim 2 recites the limitation "other than asparagine." The specification has not provided support for this limitation but rather states on paragraph 0011 that the aqueous medium can also comprise an added amino acid. This does not limit the amino acid to compounds other than asparagine. Claim 2 further recites the limitation "aqueous medium consists of yeast extract." If the aqueous medium consists of

yeast extract then the aqueous medium cannot contain any additional components such as the processed food or an amino acid, as recited in instant claim 3. Regarding instant claim 14, the specification provides support for adjusting of the pH prior to fermentation, as disclosed page 5, lines 27-29 of the specification; however it is not clear as to where in the specification support has been provided for adjustment of the pH during fermentation. In the disclosed examples, the pH has been adjusted prior to processing (i.e. fermentation). Applicant's arguments and citation of page 1, line 24 to page 2, line 2 has been fully considered but does not address adjusting the pH during fermentation. The cited page and lines state that an additive is added in order to adjust the pH.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. **Claims 1-10, 13 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilton et al. (US 4140801) in view of Levy (US 4568643), Yeast Growth Medium and Scalise (US 2721802).**

The reference and rejection with respect to Hilton et al., Levy and Yeast Growth Medium is taken as cited in the prior Office action, mailed April 4, 2006. Regarding the new limitations of removing the medium and microorganism through the outlet strainer, it is asserted, in light of the rejection under 112, first paragraph, that applicant has not provided adequate support for this limitation in the specification and as such the rejection is maintained as cited in the prior Office Action. Regarding the addition of food grade acids or an alkali metal hydroxide, it is noted that Levy teach that fermentation reaction requires certain conditions (Column 12, Lines 50-51). To the ordinarily skilled artisan, this would include the acidity or basic nature of the environment. Levy further teaches that the pH may vary from about 5 to about 7 (Column 12, lines 50-54), thus teaching optimum conditions for fermentation wherein the aqueous medium has a pH within the claimed range of 4 to 8. As such, Levy teaches adding additives to enhance the fermentation, for example by using calcium hydroxide, which is a metal hydroxide (Column 12, Lines 34-40). Therefore it would have been obvious to one having ordinary skill in the art to use an additive to enhance the fermentation process by adjusting the pH of the fermentation medium. Sodium hydroxide as an example, and alkali metal hydroxides in general have been well

known in the art for adjusting pH environments. Therefore, to use an alkali metal hydroxide in light of the teachings of Levy who teach a metal hydroxide for adjusting the pH of the fermentation medium would have been within the ordinary capabilities of one skilled in the art. Even further, Scalise (US 2721802) is relied on as further evidence of using a neutralizing agent to reduce the acidity to between pH of 5-7 for a yeast fermentation (Column 2, lines 30-33). Scalise further teaches wherein the fermentation process can be used with potato as the raw material (Column 2, Lines 43-52). Hilton et al. teach fermentation of potato products and Levy teaches that optimum fermentation requires a certain pH for the fermentation environment. In combination with Scalise, who teach neutralizing agents for potato fermentation wherein the agent results in the pH for the fermentation to be within 5-7, it would have been obvious to adjust the pH of the aqueous medium to between 5-7 for the purpose of ensuring optimum fermentation conditions. Such a modification would have ensured the reduced browning as desired by Hilton et al.

Regarding the limitation of wherein no sugars are added to the processed food through steps (a) to (e), it is noted that the claim does not positively recite adding a food product into the fermenter. Therefore the food product and any sugar is interpreted as already being contained within the fermenter. As such, the food is considered already placed within the vessel and any ingredients that are already within the vessel, such as sugar or any other component are not considered added to the food since they would all have existed within the

fermenter, while still being within the scope of the claims. Regardless of this interpretation, Hilton et al. teach wherein additional components *may* be added and thus is not a requirement of the process. Therefore, Hilton et al. teach the amendment to step e of instant claim 1.

7. **Claims 11-12, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilton et al. in view of Levy (US 4568643), Yeast Growth Medium and Scalise (US 2721802), as applied to claims 1-10, 13 and 17-19 above, and in further view of Erway (US 5750165) and Baldwin (US 2744017). Catalogue of Bacteria and Phages has been cited as evidence, as discussed below.**

The prior art is taken as applied above. It is noted that although instant claim 1 does not require the teachings of Erway and Baldwin, that lactic acid fermentation would have resulted in the production of lactic acid, which was previously not present and thus would have been considered added to the aqueous medium, as a pH adjusting agent, as a result of the generation of lactic acid. Regarding the yeast extract, when using lactic acid bacteria, the use of yeast extract in the fermentation medium has been well known in the art. The Catalogue of Bacteria and Phages has been cited as additional evidence of lactobacillus species that use a medium comprising yeast extract. Therefore, to use yeast extract in the fermentation medium would have been obvious to one

having ordinary skill in the art for the purpose of promoting the growth of the bacteria and thus enhancing the fermentation.

Response to Arguments

8. Applicant's citation in the specification of page 1, line 24 to page 2, line 2 as support for controlling the pH prior to and during fermentation has been fully considered but is not deemed persuasive. As discussed above, the citation in applicant's specification does not support *when* the control of the pH takes place but merely states that neutralizing agents comprising alkali metal hydroxide or food grade acid are used but does not say when these are added. As previously stated, applicant has provided support for controlling the pH prior to fermentation but not during fermentation, as shown on page 5 lines 27-29 of applicant's specification. Applicant states that in the examples in the specification there was no need to adjust the pH during fermentation, however the specification does not appear to provide adequate support for adjusting the pH during fermentation.
9. On pages 9-10 applicant states that since Hilton et al. add materials after the fermentation was accomplished that these materials were not subjected to the fermentation process and since these materials are rich in acrylamide precursors, the amino acid asparagine and sugars, would lead to increased formation of acrylamide in the end product during cooking. This argument has

been fully considered but is not deemed persuasive. It is noted that the products to be added by Hilton et al. may be added and thus to the ordinarily skilled artisan, it would have been obvious that they are only optionally added. On column 5, line 66 to column 6, line 12, Hilton et al. state that raw potatoes which may be blanched can be included to form the larger size particles. Blanching has been known to aid in the reduction of acrylamide when cooking such products. Hilton et al. further teach on these lines that postfermented highly dehydrated potato solids can also be added. Regarding amended claim 1, adding postfermented potato solids would still have added amino acids to the product. It is noted that potato solids would have contained more than simply asparagine as an amino acid. Therefore Hilton et al. teach that of the materials that may be added to the potato products can also be fermented potato product, which would have contained an amino acid other than asparagine.. To address browning, Hilton et al. further state, "one would not normally incorporate these or other materials in an amount such that upon further processing the formed products would exhibit undue browning or other undesirable characteristics" (Column 6, lines 3-7). In addition, the purpose of the invention of Hilton et al. is to reduce the browning of potato products when said products are rehydrated and cooked. Therefore it is asserted that since Hilton et al. reduce browning using fermentation that Hilton et al. do not promote the formation of acrylamide, as stated by applicant.

10. Applicant's arguments on pages 12-13 that Yeast Growth Medium is recommending the addition of dextrose, an acrylamide precursor, which will increase the formation of acrylamide, thus contrasting applicant's invention has been fully considered but is not deemed persuasive. It is first noted that Yeast Growth Medium is relied on as a reference to teach that yeast extract has been known in the art to be added to growth medium for the purpose of aiding in the growth of *Saccharomyces* species yeast. Secondly, regarding applicant's assertion that Yeast Growth Medium teaches dextrose which is an acrylamide precursor, it is respectfully asserted that the dextrose is used in the growth medium and is not added to the food product. Sugar is a well known component used in growth mediums for the purpose of improving the growth of the yeast and thus the rate of fermentation. Even further, applicant has also recognized that the aqueous fermentation medium can comprise sugar (see page 5, paragraph 0011 of applicant's specification), therefore applicant's arguments that the dextrose of Yeast Growth Medium increase the formation of acrylamide are not persuasive. Even further, Champagnat et al. (US 3193390) is cited as further evidence that yeast extracts have been well known to be used by the ordinarily skilled artisan for the purpose of producing yeasts (See Column 2, Line 23 to Column 4, line 67). Slator and Lund as stated in prior Office Actions have been cited as further evidence of the use of yeast extract as growth mediums. Applicant has stated that the Office Action took the statement of Steve Quest out of context and determined that "Yeast Growth Medium teaches that yeast extract

is a natural growth medium.” Steve stated that “These sound like natural growth mediums.” Regardless of whether YPD (1% Difco Bacto Yeast Extract) is a natural growth medium or not, Yeast Growth Medium teaches that yeast extract has been well known in the art as a growth medium for yeast such as *S.cerevisiae*. Regarding applicant’s statement that Yeast Growth Medium does not suggest that the dry yeast extract used without added sugar by the applicant can be used as a growth medium is not persuasive. For the reasons discussed above, it is noted that the claims state that no sugar is added to the food.

Furthermore, instant claim 1 does not positively recite placing uncooked processed food in a fermenter. As such, the food is considered already placed within the vessel and any ingredients that are already within the vessel, such as sugar or any other component are not considered added to the food since they would all have existed within the fermenter while still being within the scope of the claims.

11. Applicant’s arguments on page 14 that Hilton et al. is not comparing the potatoes which were fermented before dehydration to yeast or bacteria free potato slices and thus applicant’s potato slices have a taste far more superior to Hilton et al.’s has been carefully considered but are not deemed persuasive. It is respectfully asserted that the taste of the food product is merely a preference of the consumer and Hilton et al. still similarly teach applicant’s concept of fermentation for the purpose of reducing browning (and thus the formation of acrylamide).

Furthermore applicant's arguments are not commensurate in scope with the claims: that is, the claim only recites washing to remove residues from the fermentation but does not recite eliminating all remaining yeast. Washing to remove residues cannot be interpreted as removing all remaining yeast from the product. The Examiner asserts that this is not to be relied on as guidance as to how to limit or amend the claims but is used primarily as an example of how the claims are not commensurate in scope with applicant's arguments.

12. On pages 14-15, applicant states that the starting material used by Hilton et al. in all the examples was blanched mashed potatoes and thus would not have been capable of performing the intended use of the claimed invention. It is unclear as to why since Hilton et al. used blanched mashed potatoes that said mashed potatoes would not be capable of being washed. Even further however, it is noted that Hilton et al. teach that the potatoes may also be given other treatments before or after blanching or at other convenient times (Column 3, lines 1-3). This teaches that at any point in the process another processing step can be imparted on the potatoes. Nevertheless, as stated in the prior Office Action, the purpose of Hilton et al.'s process is to reduce browning upon frying and also to produce a potato product that may have a less yeasty or fermentation taste upon frying (See Abstract). This teaches one having ordinary skill in the art that Hilton et al. strive to remove the yeast like taste that would have been imparted to the potato during fermentation. Washing a product after processing has been

well known in the art as a means for removing residues. Therefore, since Hilton et al. teach that additional processing steps can occur after blanching and at other convenient times, and since Hilton et al. further teach providing less yeasty or fermentation taste to the product upon frying, it would have been obvious to wash the potato product prior to frying for the purpose of achieving a less fermentation or yeast like taste. Nevertheless, it is further noted that on page 6 of applicant's specification, applicant indicates that the product that can be made from the instant method include tortilla chips, pretzels and crackers. Each of these products would also have been similarly in a mashed or dough like form and subsequently reconstituted; therefore it is unclear as to how such a washing step would have been capable in the instant invention but would not have been possible in the method of Hilton et al. Siegel et al. (US 3833737) on column 2, lines 53-60) is cited as further evidence that it has been known in the art to wash a fermented product so as to remove the yeast and residues and thus it would have been within the ordinarily capabilities of one skilled in the art, since the art recognized washing a fermented product so as to remove the yeast and residues.

13. On page 15 applicant states that Levy teaches that the substrate, butanol, excess sugars and other solvents leave the fermentation reactor to the extraction unit back to the fermentation tank after the butanol is being extracted with extraction solvent. Applicant cites column 4, lines 55-62, however these lines

state that the *liquor* (i.e. fermentation liquor) passes up the extraction unit, and not the substrate. Applicant further states that on column 3, lines 2-4 that the substrate is exiting the fermentation medium through the membranes and porous surfaces. On column 3, lines 2-4, the substrate is fed into the reactor for fermentation. On column 11, lines 27-34 and lines 43-48 only mention the fermentation liquor and this does not include the substrate. Regarding applicant's assertion that the Office Action has misconstrued the reference by stating that "... Levy states that the liquid, and not the solid substrate, passes through the membrane" it is noted that Levy states that the liquid and not the bacteria pass through the membrane. Nevertheless if this is true it would have been obvious to the ordinarily skilled artisan that the substrate would also have been retained within the membrane, since the bacteria are retained. Regarding applicant's assertion that the teachings of Levy on Column 3, Lines 5-10 were taken out of context, since Levy teach that the substrate, culture and water are is part of the fermentation liquor. Even if this were true, as discussed above, Levy teaches that the filter retains the bacteria, therefore if the bacteria is retained, it is unclear as to how a substrate, such as a potato substrate would not have been retained. And as such the fermentation liquor when extracted and recycled would still not contain the bacteria and the substrate.

14. On page 18 of the response, applicant states that "contrary to the statements in the Office Action, there is nowhere in the Hilton et al. patent, whether silent or

explicit, a remote suggestion for the use of yeast extract, use of microorganisms or a pH adjusting step or recirculating the fermentation medium. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the secondary references in combination with the knowledge of the ordinarily skilled artisan provide the motivation for yeast extract and recirculation of the fermentation medium. Regarding adjusting the pH, it is noted that as a result of fermentation, the pH would naturally have been adjusted to some degree. Regarding the use of microorganisms, it is noted that yeast is considered a microorganism, and the secondary references provide the motivation for using lactic acid bacteria. As such, it is noted that Erway is similar to Hilton et al. in teaching blanching raw processed potatoes cutting the potatoes into the desired shape and "seeding" the potatoes with lactic acid bacteria. Therefore, Erway has been relied on as a teaching that it has been known in the art to use lactic acid bacteria fermentation for the purpose of inhibiting the growth of pathogenic organisms in the potato. Erway also teaches, as an objective, to reduce Maillard reaction browning (Column 6, Lines 7-10). Even further, Baldwin

recognizes that it has been known in the art to use lactic acid bacteria fermentation for the purpose of minimizing the Maillard type reactions that result in browning. It is recognized that the invention of Baldwin does not directly teach using lactic acid and further teaches using an enzymatic process however in the cited section, Lines 15-45, Baldwin teaches that it has been known in the art to use lactic acid bacteria fermentation for the similar purpose as that of Hilton et al., which is to reduce browning.

15. Regarding adjusting the pH, it is noted that instant claim 14 merely recites adjusting the pH of the medium prior and during the fermentation. In light of the rejection under 112, first paragraph, above, it is noted that the addition of materials that were not the same pH as the aqueous medium would have resulted in an adjustment in the pH. It is noted that applicant states on page 11 of the response, that applicant *preferably* has a pH adjusting step prior to the onset of fermentation. Applicant's arguments on page 11, further allude that this adjustment does not have to occur prior to but can also occur optionally, during fermentation. In any case, Erway teaches that lactic acid bacteria fermentation would have resulted in a pH of between 4.7 and 5.7. Although applicant states that control of the pH cannot be achieved by lactic acid bacteria alone, it is respectfully asserted that Erway provides a direct teaching of a change in the pH to between 4.7 and 5.7 as a result of the lactic acid fermentation. Applicant's argument on page 22, is not persuasive. Regarding the new claim limitation of

wherein the aqueous medium has a pH between 4 and 8 produced by an addition of food grade acids or an alkali metal hydroxide, it is asserted that as a result of using lactic acid bacteria fermentation, as taught by Erway and Baldwin, the fermentation would naturally of resulted in the formation of lactic acid bacteria while also changing the pH, as taught by Erway within the claimed range.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Viren Thakur whose telephone number is (571)-272-6694. The examiner can normally be reached on Monday through Friday from 8:00 am - 4:30 pm.

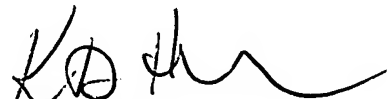
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571)272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

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Viren Thakur
Examiner
Art Unit: 1794



KEITH HENDRICKS
PRIMARY EXAMINER